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BIOMETRICS
DEPARTMENT OF DEFENSE

DoD Biometrics Enterprise Solution

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DEPARTMENT OF DEFENSE



POSITIVE IDENTIFICATION



DoD's Network Centric Infrastructure

"Driving the Need" for Identity Assurance

- Increasing Bandwidth Increasing Data Flow

- Primary Security Concern=Ensuring appropriate user-level access to data

Worldwide Installation of Cabled Fiber (million fiber-km)

Region/Year	1998	1999	2001	2002	2004
International Undersea	0.8	1.4	1.8	1.9	2.1
Developing Markets	3.5	4.8	5.3	5.8	7.4
Asia-Pacific	15.5	18.2	29.0	35.9	47.8
Eastern Europe	1.6	2.4	3.9	4.7	6.2
Western Europe	6.5	14.1	13.1	13.1	13.5
North America	17.1	21.9	25.2	25.9	28.5

Source: KMI Corp.



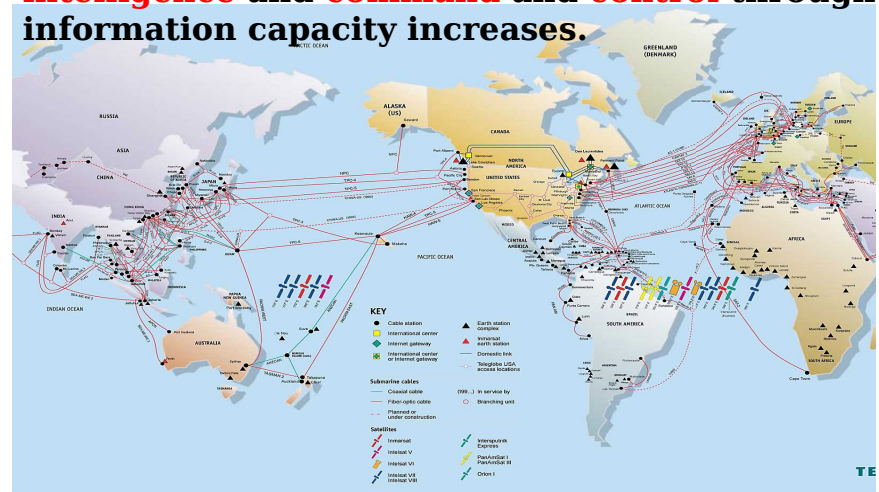
Enough fiber to circle the Earth

2200 times!

**87.3 Million
KM of Fiber in
2002**

WORLD WAR I 1915	WORLD WAR II 1945	GULF WAR 1991	FUTURE WAR 2010
Data Transfer Rate 30 Words Per Minute (telegraph)	Data Transfer Rate 66 Words Per Minute (teletype)	Data Transfer Rate 192,000 Words Per Minute (computer)	Data Transfer Rate 1.5 Trillion Words Per Minute

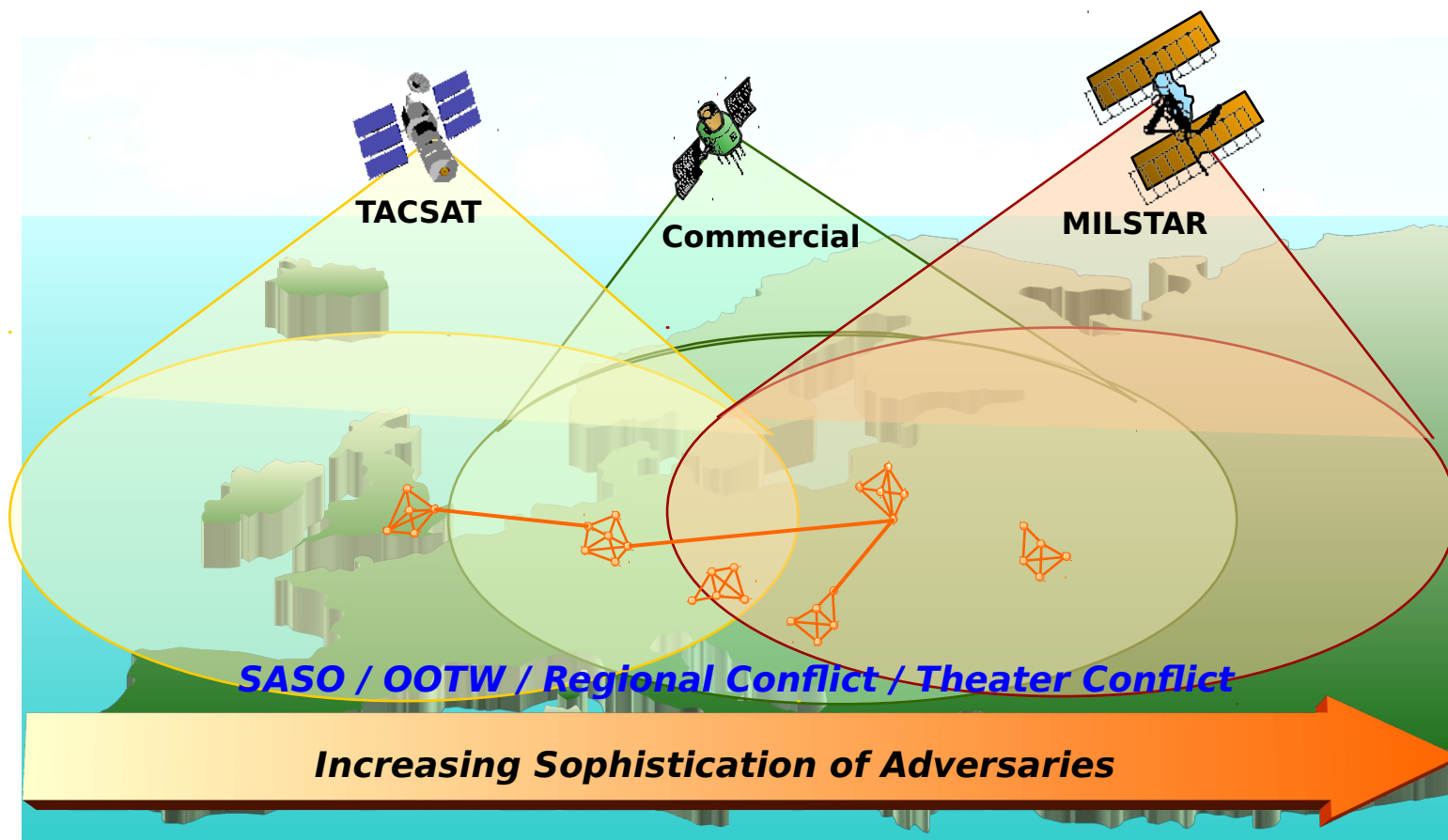
2010 Warfighter embodies improved **intelligence** and **command** and **control** through information capacity increases.



Identify Assurance Distributed & Global

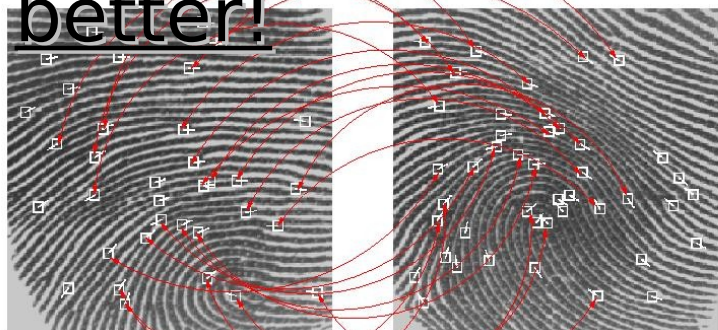
Primary Security Concern

Verifying claimed identity in remote scenarios.....
from the foxhole to the sustaining base.



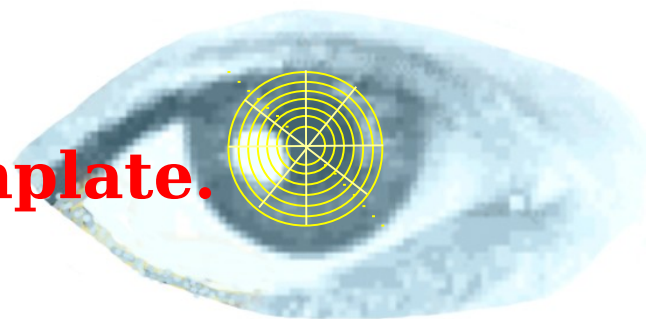
Biometrics Templates "Taxing the Infostructure"

Bandwidth limitation challenges - Smaller is better!



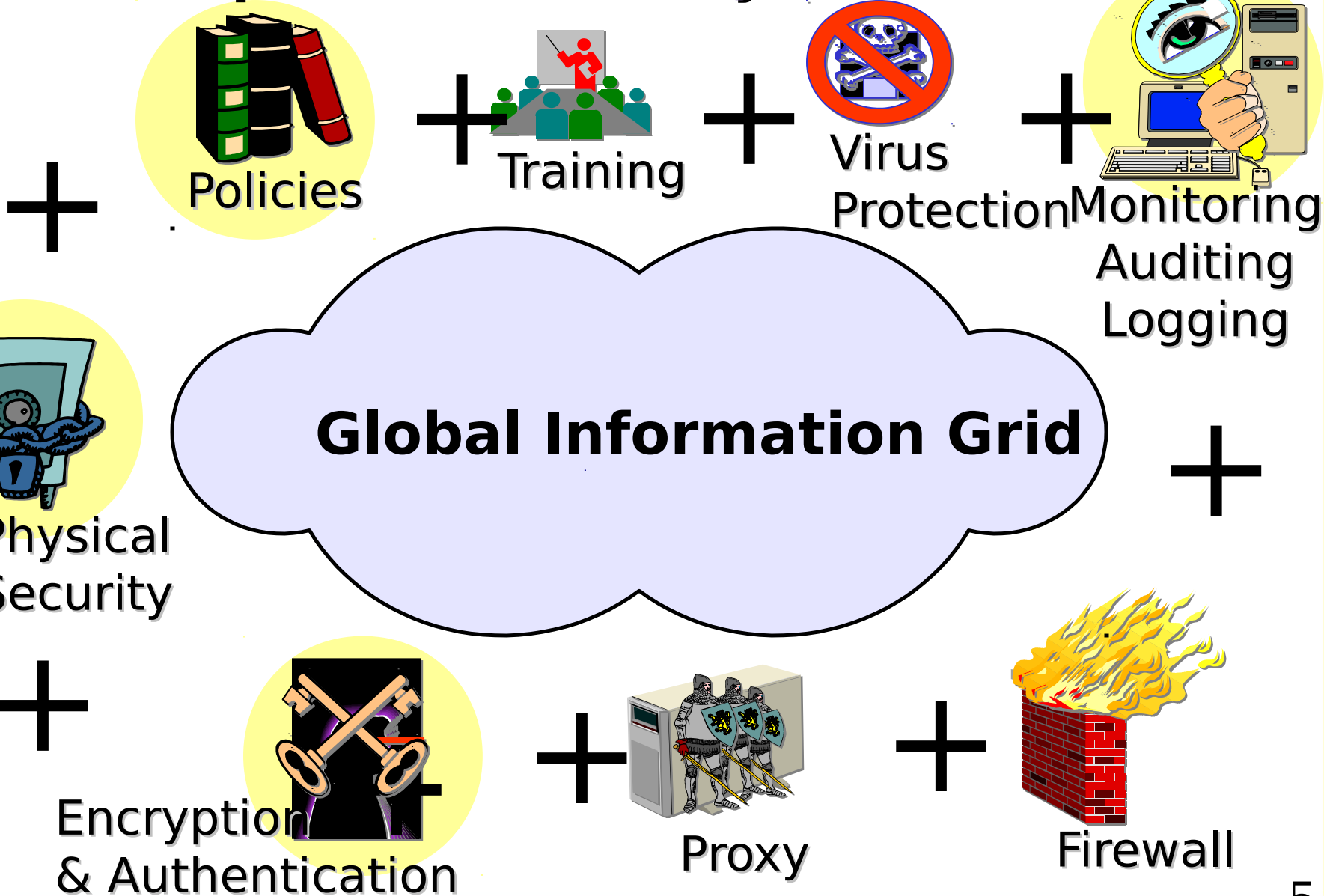
Fingerprint - 300 to 1200 byte template.

Iris -- 512 byte template.



...Global Information Grid (GIG) bandwidth expansion, Global Broadcast System (GBS), Installation Information Infrastructure Modernization Program (I3MP), Transformation Communications System (TCS) - future Satellite Communications, and Teleports will

Components of Today's Networks



Biometrics - "the Solution for Enhanced Security"

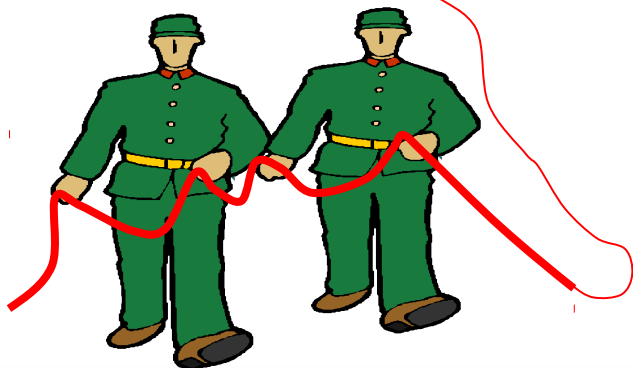
■ Insider Threat.

- Increase individual user accountability
- Audit trail mechanisms -- irrefutable record of user actions.



■ Capture and Over-run.

- Tactical radio systems remotely zeroized
- Tactical C2 systems remotely destroyed if captured
- Signal duress



Biometrics - “the Solution for Enhanced Security”

(continued)

- Fraud - Prevent unauthorized access.
 - Business Processes
 - Warfighting
- Logical Access – Elimination of PINs and Passwords subject to compromise
- Terrorism.
 - Control physical access
 - Identify unusual access
 - Create digital dossier



CHALLENGES

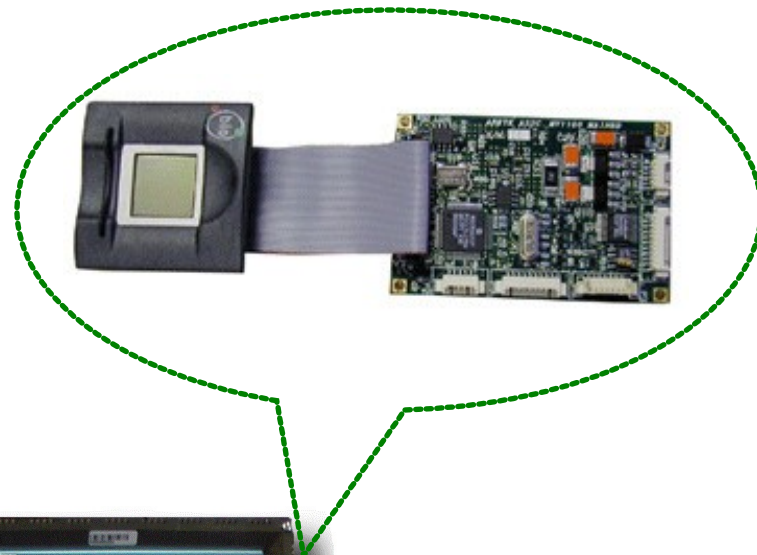
for Tactical Biometric Applications

- **Tactical Environment**
 - Extreme Operating & Storage Temperatures
 - Humidity, Fog, Rain, Snow, Frost, and Salt Fog
 - Blowing Sand, Mud & other contaminants
 - Solar Radiation, Shock, Vibration
- **User Issues**
 - Mission Oriented Protective Posture (MOPP) IV
 - Ergonomics
 - Biometric image distortion
 - Liveness Testing
 - Power consumption



Trends for Tactical Biometrics

- **Sensor Improvements:**
 - Improved temperature tolerances
 - Resistance to Electro-Static Discharge (ESD)
 - Smaller footprint
 - Reduced power consumption
 - Additional hardware interfaces available
 - Reducing response times
- **Market is Windows-centric**
 - Expansion into other operating environments, i.e., Sun Solaris, Linux, embedded systems
- **Compliance with standards**
 - BioAPI
 - Interoperability
- **Middleware to integrate multiple biometric equipment & systems**



Roadmap: DoD Biometrics Enterprise

▪ **By January, 2003 - Functional Requirement Analysis (RAND/BMO)**

- Survey the user community for requirements

▪ **By May, 2003 - Technology Demonstration (Contractor Spt/BFC)**

- Proof of concept for placing Biometrics on CAC
- TD Scenarios
 - Collection
 - Repository
 - Access & Retrieval
 - Use

▪ **By May 2003 - Acquisition Strategy (PEO EIS/BMO)**

- Identify organization to conduct system integration
- Develop program baseline
- Functional Economic Analysis

By May, 2003 - Architecture Design DMDC/MITRE/BMO)

- Operational Architecture

- Systems Architecture

▪ **By October, 2003 - Policy Framework (BAH/BMO)**

- Standards Architecture
 - Develop policies for DoD Biometrics Program

▪ **By January 2004 - Initial Operational Capability (PEO/Industry)**

- Collection system
- Storage system
- Access, Retrieval and Directories

▪ **By January, 2005 - Full Operational Capability**



Conceptual DoD Biometrics Enabled Site

Biometrics Collection



Collection Point
Ft. Leavenworth

Biometrics Use

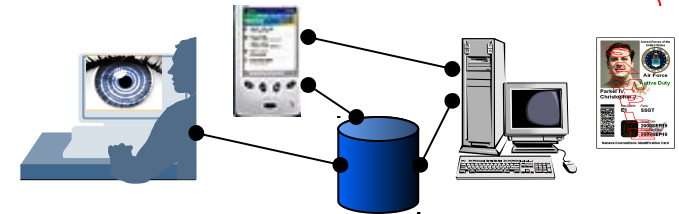


Gates
I&A claim
Pass/Fail



Entrances, Doors

Access Points



CAC, Computers, PDAs, Networks, Databases

Identity and Authentication Service

Resource Manager
Local access policy

Synchronization/Refresh

Local Repository
(Biometrics Enabled Site)
Local Storage/Cache

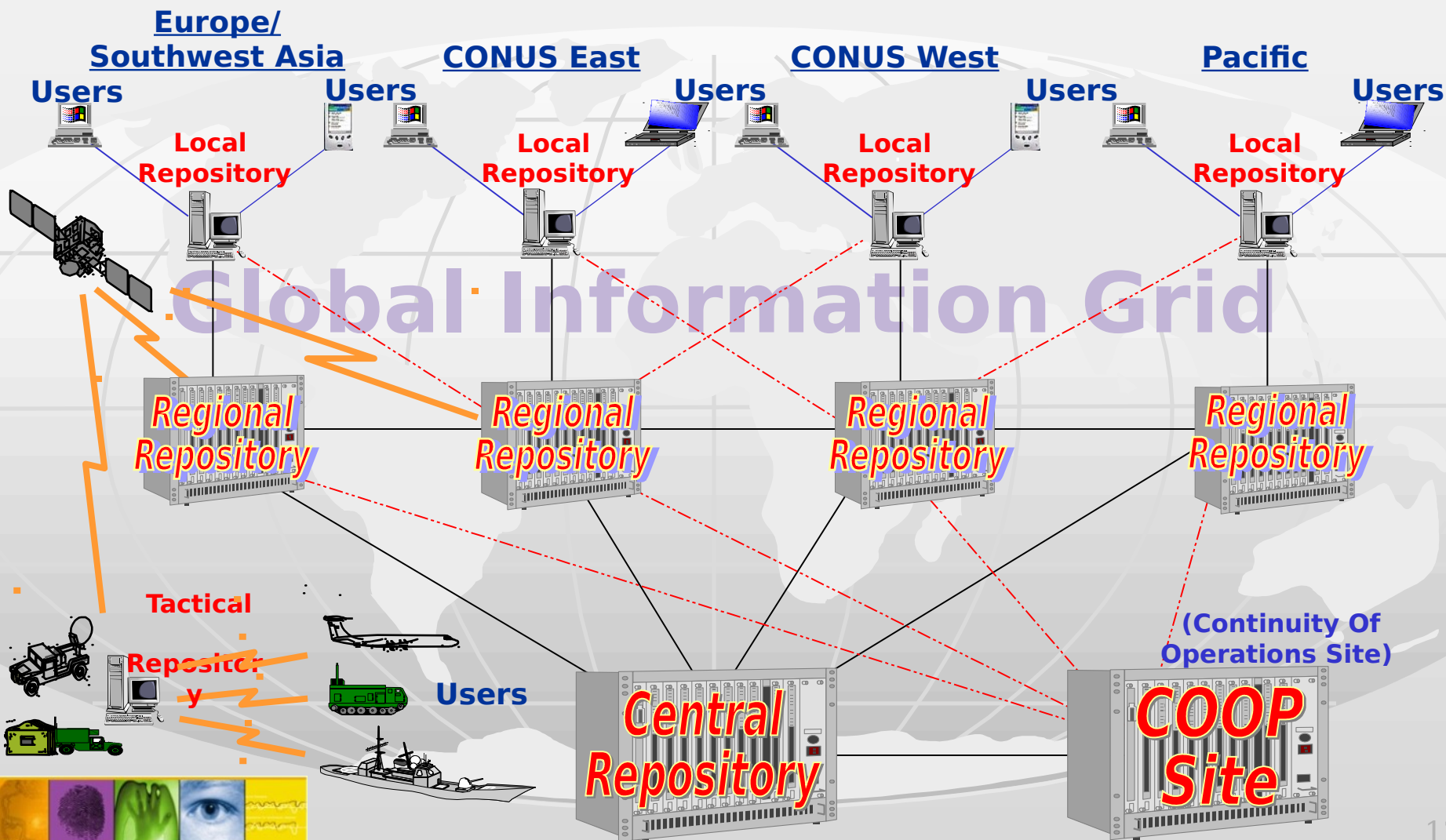
Central Repository
(Biometrics Fusion Center - Consolidated Storage)
W.V.

Other database

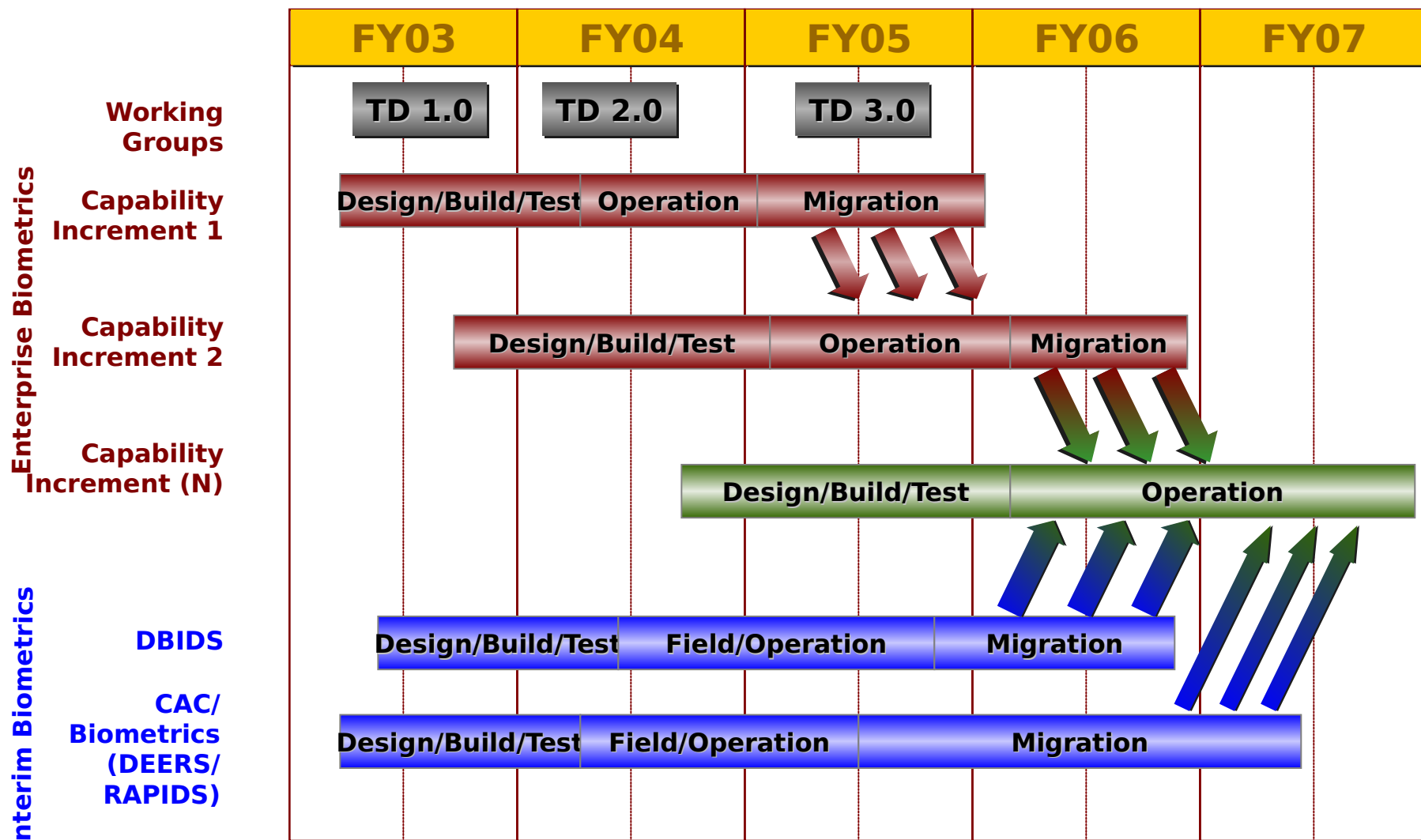
RAPIDS (Real-Time Automated Personnel Identification) System
Pentagon

MEPS (Military Enlistment Processing Station)
Baltimore, MD

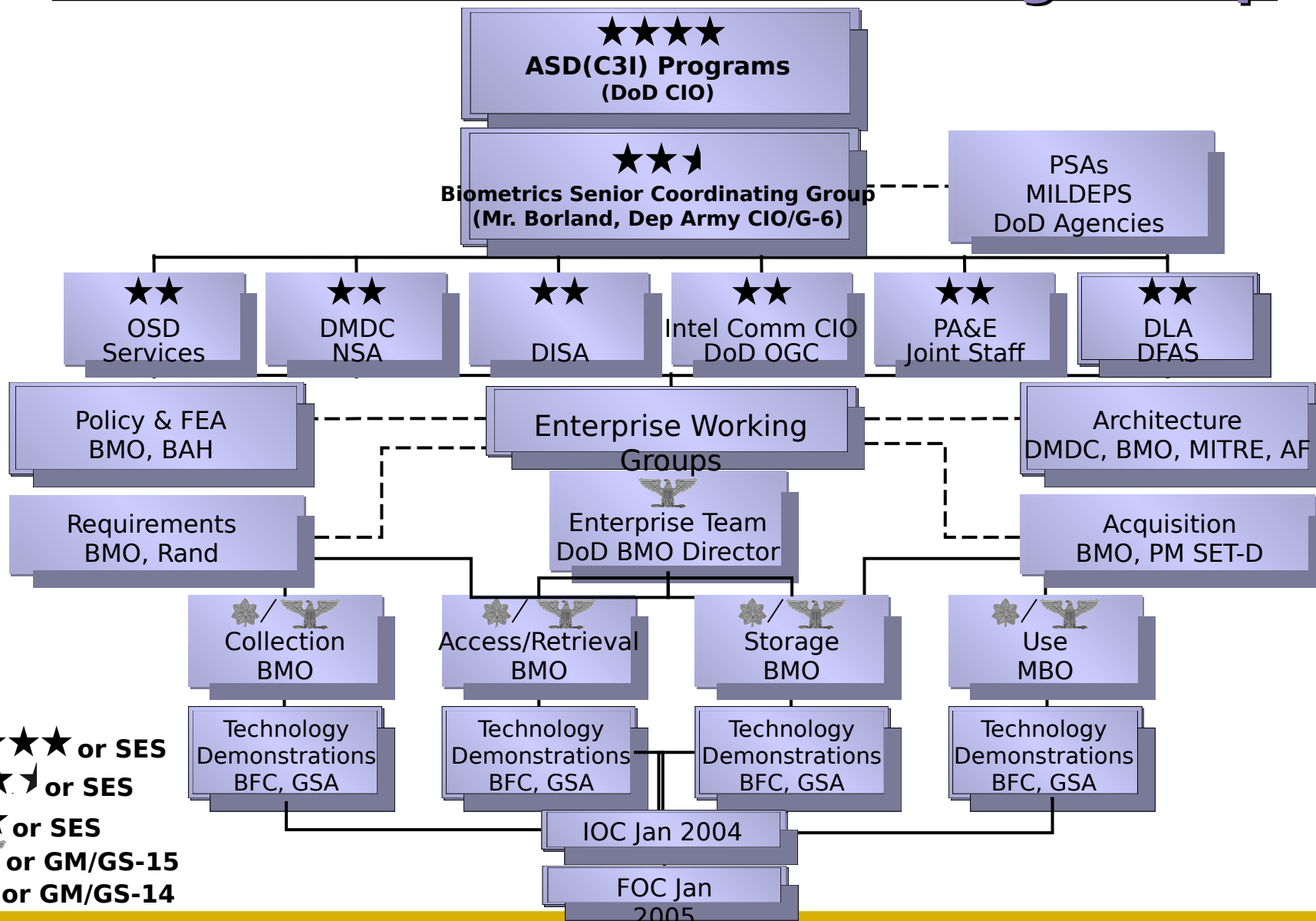
Conceptual End State: DoD Biometrics Enterprise Architecture



Enterprise Solution Acquisition Strategy



Biometrics Senior Coordinating Group



Summary

- DoD -- riding the cutting edge of technology
- Need followed by availability goes asymmetric
- Enterprise Solutions to standardize use of biometricsright personright placeaccess at the right time

